REMARKS/ARGUMENTS

Claims 1-4 and 7-20 are pending in the present application. Claims 1, 11 and 12-20 were amended. Support for amendment of claims 1, 11, and 12 can be found at least on page 8, lines 4-5, and page 16, lines 16-21, of the specification. Reconsideration of the claims is respectfully requested.

I. Examiner Interview

Applicants thank Examiner Neway for the courtesies extended to Applicants' representative during the November 15, 2007, telephone interview. During the interview, suggestions to amend the present application to overcome the 35 U.S.C. § 101 rejection were discussed. Examiner Neway suggested amendments that would overcome the 35 U.S.C. § 101 rejection. Amendments to overcome the 35 U.S.C. § 102 rejection were also discussed. The substance of the interview is summarized in the remarks of sections that follow.

II. 35 U.S.C. § 101

The Examiner has rejected claims 12-20 under 35 U.S.C. § 101 as being directed towards non-statutory subject matter. This rejection is respectfully traversed.

The Examiner states that:

> Claims 12-20 are directed to a "computer program product" which, lacking a clear and precise definition in the specification, could reasonably be interpreted as program alone. . . . Amending the claims to recite 'A recordable-type medium encoding a computer program product . . .' would overcome this rejection in a manner consistent with Applicant's specification.

Office Action dated August 28, 2007, p.2-3.

By this response, claims 12-20 are amended to recite "A recordable-type medium encoding a computer program product . . ." as suggested by the Examiner. Therefore, Applicants respectfully submit that claims 12-20 are statutory, and request withdrawal of the rejection of claims 12-20 under 35 U.S.C. § 101.

III. 35 U.S.C. § 102, Anticipation

The examiner has rejected claims 1-20 under 35 U.S.C. § 102 as being anticipated by *Xue* et al., Building a Large-Scale Annotated Chinese Corpus, Proceedings of the 19th International Conference on Computational Linguistics, 2002 (hereinafter *Xue*). This rejection is respectfully traversed.

Applicants first address this rejection with respect to claim 1. In rejecting claim 1, the Examiner states the following:

> Xue discloses a method, in a data processing system, for parsing Eastern Asian language character streams (Introduction, lines 1-4), the method comprising: receiving a corpus of word-based parse trees ("Using the data from the CTB-1 . . .", page 3, col.1, Section 1.3.1, lines 1-3); converting the corpus of word-based parse trees into a corpus of character-based parse trees ("the word segmentation problem can be modeled as an ambiguity resolution problem . . .", page 3, col. 2, Section 1.3.1, lines 3-6); and training a parser using the corpus of character-based parse trees (page 3, col. 2, Section 1.3.1, lines 36-39).

Office Action dated August 28, 2007, p.4.

A prior art reference anticipates the claimed invention under 35 U.S.C. § 102 only if every element of a claimed invention is identically shown in that single reference, arranged as they are in the claims. *In re Bond*, 910 F.2d 831, 832, 15 U.S.P.Q.2d 1566, 1567 (Fed. Cir. 1990). All limitations of the claimed invention must be considered when determining patentability. *In re Lowry*, 32 F.3d 1579, 1582, 32 U.S.P.Q.2d 1031, 1034 (Fed. Cir. 1994). Anticipation focuses on whether a claim reads on the product or process a prior art reference discloses, not on what the reference broadly teaches. *Kalman v. Kimberly-Clark Corp.*, 713 F.2d 760, 218 U.S.P.Q. 781 (Fed. Cir. 1983). In this case, each and every feature of the presently claimed invention is not identically shown in the cited reference, arranged as they are in the claims.

By this response, claim 1 has been amended to recite:

> 1. (Currently amended) A method, in a data processing system, for parsing Eastern Asian language character streams, the method comprising:
>
> receiving a corpus of word-based parse trees;
>
> converting the corpus of word-based parse trees into a corpus of character-based parse trees; and
>
> training a character-based parser using the corpus of character-based parse trees, wherein the character-based parser is used at a character level, wherein the character-based parser does not require a separate word-segmenter.

Independent claims 11 and 12 recite similar subject matter. *Xue* fails to disclose "converting the corpus of word-based parse trees into a corpus of character-based parse trees." Furthermore, *Xue* does not disclose "training a character-based parser using the corpus of character-based parse trees, wherein the character-based parser is used at a character level, wherein the character-based parser does not require a separate word-segmenter."

III.A. Xue Fails to Disclose Converting the Corpus of Word-Based Parse Trees Into a Corpus of Character-Based Parse Trees

Xue fails to anticipate amended claim 1, because *Xue* does not teach the converting step of claim 1. In rejecting claim 1, the Examiner cites to *Xue* at page 3, col. 1, Section 1.3.1, lines 1-3, and page 3, col. 2, Section 1.3.1, lines 3-6, which state the following:

> Using the data from CTB-1, we trained an automatic word segmenter, using the maximum entropy approach. In general, machine learning approaches to Chinese word segmentation crucially hinge on the observation that word components (here we loosely define word components to be Chinese characters) can occur on the left, in the middle or on the right within a word. It would be a trivial exercise if a given character always occurs in one of these positions across all words, but in actuality, it can be ambiguous with regard to its position within a word. This ambiguity can be resolved by looking at the context, specifically the neighboring characters and the distribution of the previous characters. So the word segmentation problem can be modeled as an ambiguity resolution problem that readily lends itself to machine learning approaches. It should be pointed out that just the ambiguity cannot be completely resolved just by looking at neighboring words. Sometimes syntactic context is also needed (Xue 2001). As a preliminary step, we just looked at the immediate contexts in our experiments.

The cited portion discloses a maximum entropy segmenter using words from CTB-I as training data and testing data for a word-segmenter. *Xue* teaches word-based annotation relying on the accuracy of word-based segmentation. *Xue* does not disclose character-based parse trees. In fact, *Xue* does not even mention parse trees at all. Thus, *Xue* fails to teach or even mention "converting the corpus of word-based parse trees into a corpus of character-based parse trees."

Even if, *arguendo*, the word segmentation of *Xue* could disclose a parse tree, *Xue* only discloses a word-based parse tree. *Xue* does not teach parsing or segmenting on a character level. Nor does *Xue* teach converting word-based trees into character-based trees, because *Xue* never addresses character-based parse trees.

Therefore, *Xue* is devoid of any teachings that disclose "converting the corpus of word-based parse trees into a corpus of character-based parse trees." Thus, under the standards of *In re Bond*, *Xue* does not anticipate amended claim 1.

III.B. Xue Fails to Disclose Training a Character-Based Parser Using the Corpus of Character-Based Parse Trees Wherein the Character-Based Parser is Used at a Character Level Wherein the Character-Based Parser Does Not Require a Separate Word-Segmenter

Xue fails to anticipate amended claim 1, because *Xue* does not disclose the training step of amended claim 1. In rejecting claim 1, the Examiner cites to *Xue* at page 3, col. 2, Section 1.3.1, lines 36-39, which states the following:

> Using 80,000 words from CTB-I as training data and the remaining 20,000 words as testing data, the maximum entropy segmenter achieved an accuracy of 91%, calculated by the F-measure, which combines precision and recall.

As discussed above, the cited portion discloses using words from CTB-I as training and testing data with a maximum entropy segmenter. *Xue* discloses creating an annotated corpus of Chinese words, which are then parsed at a word level. The word-based parser of *Xue* requires a separate word segmenter. *Xue* cannot disclose parsing at a character level because *Xue* does not disclose or even mention a character-based parser or a character-based parse tree. Furthermore, *Xue* fails to disclose a character-based parser that does not require a separate word-segmenter.

Therefore, *Xue* is devoid of any teachings that disclose "training a character-based parser using the corpus of character-based parse trees, wherein the character-based parser is used at a character level, wherein the character-based parser does not require a separate word-segmenter." Thus, under the standards of *In re Bond*, *Xue* does not anticipate amended claim 1.

III.C. Independent Claims 11 and 12

Amended independent claims 11 and 12 recite features similar to those presented in amended claim 1. Therefore, claims 11 and 12 are distinguishable over *Xue* for at least the reasons set forth above with regard to claim 1.

III.D. Dependent Claims 2-4, 7-10, and 13-20

Claims 2-4, 7-10, and 13-20 depend on independent claims 1, 11, and 12. Therefore, at least by virtue of their dependence on claims 1, 11, and 12, *Xue* does not anticipate these claims. In addition, dependent claims 2-4, 7-10, and 13-20 recite additional combinations of features not taught by the cited art.

For example, dependent claim 6 recites "providing the model to a decoder, wherein the decoder parses Eastern Asian language character streams at a character level using the model." Dependent claim 6 discloses a decoder that parses character streams at a character level using a model formed when the

parser of claim 1 is trained. *Xue* does not disclose a decoder of any kind, much less a decoder that parses character streams at a character level. Thus, *Xue* fails to disclose the features of claim 6.

Another example is dependent claim 7, which recites "parsing the test sentence using the decoder to form one or more character-based parse trees." Dependent claim 7 discloses forming character-based parse trees. As discussed above with regard to amended claim 1, *Xue* does not mention character-based parse trees. Thus, *Xue* fails to disclose the features of claim 7.

As shown above, *Xue* is devoid of disclosure of all the features as recited in claims 1-4, and 7-20. Therefore, the rejection of claims 1-4 and 7-20 under 35 U.S.C. § 102 has been overcome.

IV. Conclusion

It is respectfully urged that the subject application is patentable over *Xue* and is now in condition for allowance.

The Examiner is invited to call the undersigned at the below-listed telephone number if in the opinion of the Examiner such a telephone conference would expedite or aid the prosecution and examination of this application.

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Respectfully submitted,

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